

MOBILE PET IMAGING SYSTEM

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T-014964

Background

PET scanners are valued for their ability to provide whole-body functional and anatomic information, important in the diagnoses and management of metabolic conditions. However, there is currently a need in the market for a smaller imaging system that can be used for point-of-care applications, such as during operations or treatments in an emergency vehicle. A portable, real-time system is dependent on a new configuration of detector arrays to minimize the footprint and to decrease image reconstruction times.

Technology Summary

A mobile and compact, two detector panel PET system that provides near real-time feedback. The detector panels can be independently adjusted to image only a region of interest, which greatly decreases acquisition time compared to whole-body systems. In addition, the continuous image reconstruction means that the operator can interactively adjust the panels to enhance image quality as needed. Since the system is compact and has only two detectors, the proposed cost is more economical than that of a traditional system.

Stage of Development

Proof of concept detector prototypes have been developed and are able to synchronize between the detection panel and location tracking systems. The imaging probe is able to perform image reconstruction for a series of set locations at a rate of 0.83 million events per second per iteration. Next steps are to evaluate real-time image resolution and to test the ability of our point-of-care PET system to detect lesions in various regions of interest (breast, axilla, head) in patients.

Patents

[US 11,246,543](#)

Publications

[Li et. al., IEEE Nuclear Sci Symposium, 2014](#)

[Li et. al., Soc Nuclear Med, 2015](#)